ENERGY

WE ENERGIZE
THE WORLD

RAILWAY INFRASTRUCTURE

COMPETENT SOLUTIONS FOR ELECTRIC RAILWAYS AND TRAMWAYS

RAIL
MOSDORFER
KNILL GRUPPE

RAILWAY INFRASTRUCTURE

SOLUTIONS FOR TODAY'S AND FUTURE CHALLENGES

SOLUTIONS

Reliable and maintenance-free infrastructure provides the basis for trouble-free operation of electric railways for local and long-distance travel.

Rail traffic is steadily increasing around the world. This places new demands on railway lines – both on existing routes as they expand and on newly built lines. Mosdorfer Rail is a full-service provider offering innovative and sustainable solutions for electric railways and tramways. We maintain a consistent focus on the reliability of the overhead contact system and high track availability.

50 Years of Railway expertise

Mosdorfer Rail has been delivering solutions for railway electrification for more than 50 years – everything from a single source. Our products are installed around the world on underground, tram and high-speed rail lines. Today they set the standard for railway companies. All our products represent the highest quality while meeting and exceeding international standards as well as the requirements of renowned railway operators. Benefit from our experience in engineering, construction and installation.

Our expertise:

Railway Catenary Systems
Tensioning
Insulation technology
Power supply
Safety equipment

For railways and tramways

Short distances between stops, high peak capacities and high train density are the greatest challenges in local transport. Another point to consider with tram systems is the increasing preference for aesthetic design. Networks are complex and the geographical extent is limited.

Conditions are different in long-distance transport: High-speed passenger services and large forces from starting freight trains mean that overhead contact lines need to be extremely robust. Modern high-speed lines with numerous tunnels and bridges require compact solutions that can be easily integrated into structures. The network as a whole extends over a wide area, while railway stations and stops are far apart.

At the same time, in local and long-distance transport, the operational safety of lines, the protection of passengers e.g. at stops and stations, and the prevention of vandalism are becoming increasingly important factors. Mosdorfer Rail offers solutions for all the challenges associated with modern rail and tram lines.

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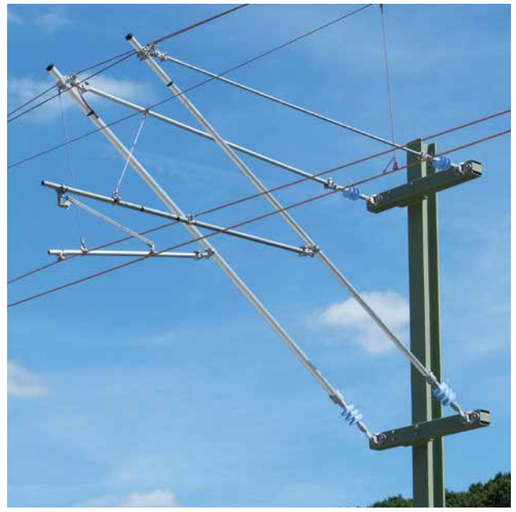
RAILWAY CATENARY SYSTEMS

EXT
PER
TISE

Our portfolio includes cantilevers for all applications, for AC and DC systems made from steel, stainless steel and aluminium.

Better capacity utilisation of railway lines, denser intervals between trains and higher speeds mean that stresses and strains on overhead lines are constantly increasing. Mosdorfer Rail offers overhead contact solutions and an extensive range of cantilevers, suspension clamps and connectors for all applications.

Our innovative spring-tensioning system TENSOREX C+ is a forward-looking alternative that offers many advantages over conventional wheel tensioners. Devices for measuring the height of overhead contact lines round out the offering.



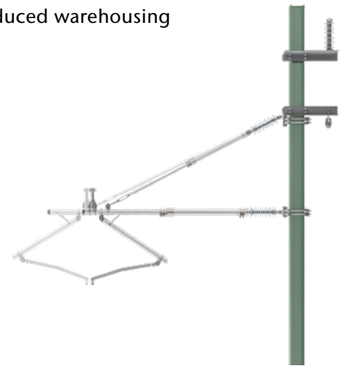
Extendable telescopic rods facilitate fast adjustment for catenary construction.

Cantilevers

Overhead lines need to be optimally matched to the respective requirements. At the same time, installation should be simple and warehousing should preferably be kept to a minimum. The Mosdorfer Rail product portfolio comprises the complete range of cantilevers, tunnel suspensions and steady arms for AC and DC systems, for railways, underground train systems and tramways.

Components are manufactured from high-grade materials in controlled production processes. For the insulation of cantilever tubes, a choice of Mosdorfer Rail composite or porcelain insulators is available. Our cantilevers are used around the world on both standard and high-speed lines.

Adjustable cantilever
- Pull-out telescopic rods
- Supplied ready-to-install
- Fast fitting
- Reduced warehousing



RAILWAY CATENARY SYSTEMS

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Suspension clamps

Mosdorfer Rail manufactures suspension clamps on an individual, customer-specific basis for better installation with minimal tolerances.

Mosdorfer Rail manufactures suspension clamps and connectors using hot and cold forging processes. We custom-produce to enable significantly better installation with minimal length tolerances. All suspension clamps conform to EN 50119 and have a long life-span.

Benefits
- Fast and simple installation
- Custom-manufactured
- Catenary cable 25–300 mm², contact wire 80–161 mm²

Connectors

Our connectors are made from high-grade aluminium and copper alloys and guarantee a reliable connection on all types of cable.

Mosdorfer Rail offers a complete range of compression and bolted connectors for all cable types. High-grade aluminium and copper alloys ensure a secure connection and reliable current flow.

Benefits
- Perfect electrical contact
- Faultless current flow
- For all cables from 10–300 mm²

CuNiSi connectors

Outstanding performance for use on high-speed lines: CuNiSi connectors from Mosdorfer Rail.

Made from a high-strength copper alloy, these connectors have excellent mechanical and electrical properties. CuNiSi connectors deliver outstanding performance especially for use on very demanding high-speed lines.

Benefits
- Lightweight and durable
- Very good mechanical and electrical properties
- Perfect solution for high-speed lines

RAILWAY CATENARY SYSTEMS

EXP
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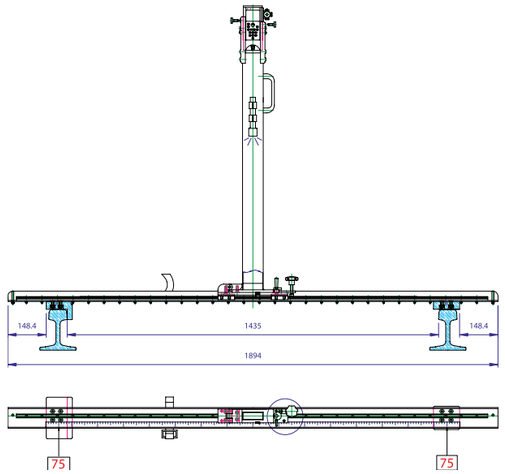
The Mosdorfer Rail catenary geometry laser measuring device combines ease of operation with maximum precision in a compact design.

Modern high-speed trains travel at up to 350 km/h (217 mph). To ensure a constant power supply at such speeds, catenary systems need to be installed with precision and tight tolerances. Mosdorfer Rail provides state-of-the-art tools and equipment that meet and exceed all requirements of international railway operators.

Catenary laser measuring device

Precise and compact: the Mosdorfer Rail catenary geometry laser measuring device.

High-precision measurement systems are needed to set up and maintain catenary systems.



Benefits
- Contactless laser measurement
- Precise measurement of height and lateral position
- Robust mechanical construction
- Simple to adjust, adjustment by manufacturer is not required
- Weatherproof and corrosion-resistant
- Easy to transport
- Measures track superelevation and pole distance (depending on model)

Device in numbers
- Working height: approx. 1.2 m above rail top edge
- Suitable for all types of catenary systems
- Contact wire stagger: +/- 75 cm
- Track gauge: 1,435 mm, 1,524 mm, 1,000 mm (other track gauges on request)
- Measurement accuracy: lateral position +/- 5 mm, contact wire height +/- 0.5 mm
- Weight: 11 kg

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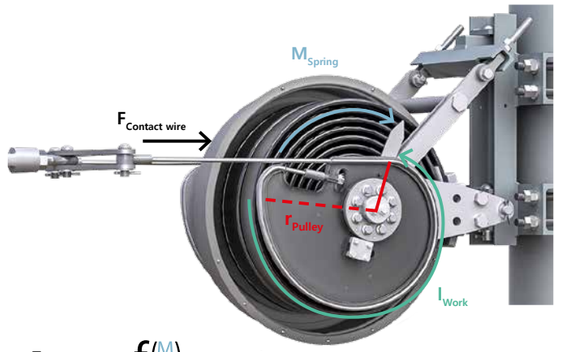
EXPERTISE PER TENSIONING

TENSOREX C+ is significantly more compact than conventional tensioning devices, and can be fitted in about an hour.

Modern railway tracks place extremely high demands on their tensioning systems. High-speed lines with numerous tunnels need tensioning devices that can be easily integrated into the tunnel geometry. There is a growing trend for urban transport systems to be aesthetically designed, requiring tensioning devices that blend inconspicuously into their environment. TENSOREX C+ by Mosdorfer Rail is an innovative solution for both types of application.



$$F_{Contact\ wire} = f\left(\frac{M}{r}\right) = const.$$

TENSOREX C+

TENSOREX C+ is a spring-based tensioning system for overhead lines on electric railways and tramways. It ensures that cables and wires remain at a constant height under tension. The necessary tensioning force is generated by the patented interaction between a spiral spring and a cam with variable radius – concrete and steel weights are not needed.

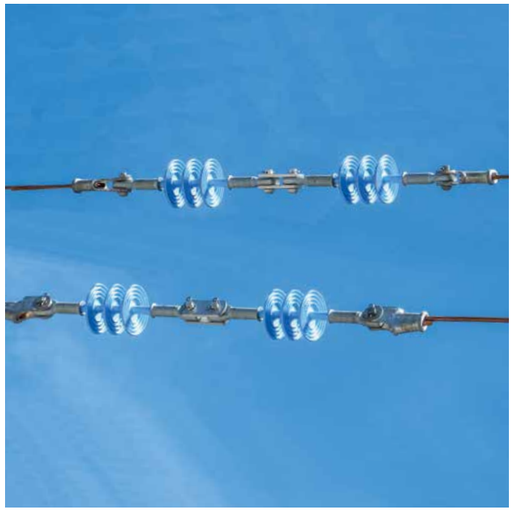
TENSOREX C+ is a maintenance-free, economic system. Fast and easy installation – in about an hour – means lower personnel expenses and requires no additional expertise. This significantly reduces installation costs in comparison with conventional solutions.

Benefits

- Lighter and more compact than wheel tensioning systems
- High response accuracy
- Superior safety
- Simple installation – low installation expenses
- Practically maintenance-free
- Low susceptibility to vandalism

INSULATION TECHNOLOGY

Our composite insulators can be individually adapted to all railway applications thanks to our patented modular system.



Insulators are a key component in all energy networks – including on electrical overhead lines and in distribution stations.

Mainly porcelain or composite insulators are used in railway engineering. There is no functional difference between the two types of material – but porcelain or silicone may be advantageous depending on the application. Mosdorfer Rail together with the company LAPP Insulators can look back on decades-long experience in the manufacture of insulators. The Mosdorfer Rail operates its own laboratories for high-voltage testing and material investigations.

Composite Insulators

Composite insulators consist of a fibreglass core surrounded by a silicone rubber sleeve and fitted with steel or aluminium connections. The complete product range serves all applications from conventional 750 V DC lines to 25 kV AC high-speed lines. The main advantages are that they are not susceptible to vandalism and are self-cleaning in rain. As a result, they are suitable for use in heavily polluted areas.

Our patented modular system means that composite insulators can be adapted to all railway applications. High-grade third-generation HTV silicone rubber and the patented shed with underribs design provide extra reliability and safety.

Benefits
- Low weight
- No risk of vandalism
- Easy storage and handling

POWER SUPPLY

CONNECTING AND JOINING
METALLIC CONDUCTORS

Connecting and joining metallic conductors has been a Mosdorfer Rail core competence for almost 100 years.

We are constantly working on solutions to make installation easier and safer, and energy networks more efficient. At Mosdorfer Rail we have an extensive portfolio for all applications and for connecting all common conductors – whether between stations or in substations.

SICON

SICON bolted connectors can be used and Connectors regardless of the conductor material and conductor type. The connectors are fitted directly onto the conductor ends using standard tools. The intelligent SICON bolt prevents damage to the conductor and ensures the correct contact force.

Benefits
- Reliable electrical contact with all conductors
- Optimal contact force for any conductor
- No damage to individual wires
- Installation using standard tools
- Large clamping range from 10 to 630 mm²

2DIREKT

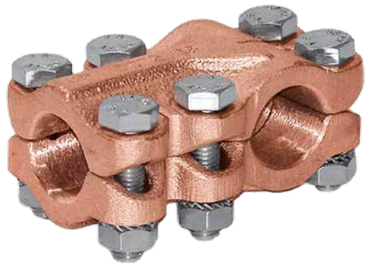
The 2DIREKT transformer terminal simply connects directly to the distribution transformer. Wires can be connected in parallel or offset by 90°. The patented connection system prevents damage to the wires and ensures constant contact pressure.

Benefits
- Conductors can be connected horizontally and/or vertically
- Individual wires do not get cut off
- Low space requirements
- For indoor and outdoor use
- Installation using standard tools, no crimping

EXPERTISE PER

POWER SUPPLY

CONNECTING AND JOINING
METALLIC CONDUCTORS



Substation clamps and connectors

We manufacture and sell an extensive range of aluminium and copper alloy clamps and connectors for use on electrical wires and/or tubular busbars.

Benefits
- Large voltage range: 500 V to 400 kV
- For busbar diameters up to 250 mm
- Current-carrying capacity up to 6,300 A

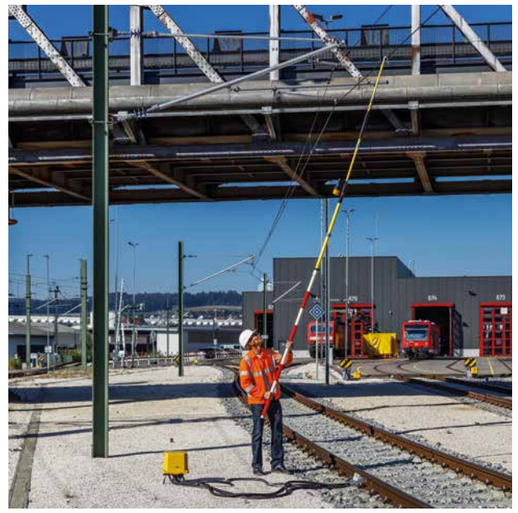
Earthing branch terminal RSC-T

To protect people and surroundings, metallic components along electrified railway lines need to be earthed. Mosdorfer Rail has developed a simple solution in the shape of the RSC-T, which saves a lot of time in comparison with established practice. The earthing branch terminal can be integrated directly into an existing system – no preparatory work is required.

Benefits
- Compatible with anti-theft cables
- No break in main conductor
- No sharp knife required to strip insulation
- Cuts installation time by up to 50 %
- No open flame required for installation

SAFETY EQUIPMENT

Our safety equipment represents the highest international standards of quality, safety and reliability.



Safety equipment is one of the most sensitive aspects of railway electrification. Reliable products, ease of use and operational safety are therefore essential. Mosdorfer Rail offers a complete range of voltage detectors, earthing and short-circuiting devices, as well as earthing and operating poles, which can be exactly matched to any requirements thanks to our modular system design.

SAFETY EQUIPMENT

Voltage detectors

Mosdorfer Rail offers voltage detectors for all common railway voltage systems worldwide. Our voltage detectors are universal – depending on the model they can be used on contact wires and power lines or on switchgear – and they are impressively easy to use. For maximum safety and certainty, Mosdorfer Rail uses a double signal system. An audible and a visual signal give a clear warning if voltage is present. Each time they are switched on, our voltage detectors perform a selftest before giving a ready signal – an important safety feature.

Benefits

- Clear and unambiguous signalling
- Self-test every time it is switched on
- Intelligent modular system for all applications
- Use the same device indoors and outdoors
- Design meets international standards

Earthing and short-circuiting devices

Mosdorfer Rail offers an extensive range of conductor and earthing clamps for use in all cases.

Because earth cables can lash about in a short-circuit situation and endanger personnel in the immediate vicinity, they should not be unnecessarily long and the optimal cable should be selected for the specific application. Mosdorfer Rail therefore manufactures all earthing and short-circuiting devices exactly and individually to meet respective customer requirements.

Portfolio

- Earthing clamps for all applications
- Conductor screw clamps for all applications
- Cylindrical, ball and T-bolts as earthing bases
- Earthing poles
- Earthing and short-circuiting devices
- Rail earthing clamps
- Contact wire earthing terminals

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